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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,422	07/20/2001	Andrew S. Wright	DATUMTE.009 A	2659

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EXAMINER

TRAN, KHANH C

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/910,422	WRIGHT ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Khanh Tran	2631	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 May 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8, 12-25, 28 and 30-34 is/are allowed.
- 6) ☒ Claim(s) 9-11, 26, 27 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The Amendment filed on 05/09/2005 has been entered. Claims 1-34 are pending in this Office action.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 26-27 have been considered but are moot in view of the new ground(s) of rejection.

3. The objection of claims 14-16 has been withdrawn after claims 14-16 are amended to correct the informalities.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9-11, 26-27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doberstein et al. U.S. Patent 6,424,678 in view of Okamoto et al. U.S. Patent 5,960,028.

Regarding claim 9, referring to figure 1, in column 5, lines 25-55, a multi-channel QAM includes a serial-to-parallel converter 104 for converting a serial data stream into

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parallel sub streams being fed to a plurality of pulse shape filters 116, each sub-channel stream is frequency translated to a separate sub-carrier frequency by plurality of complex mixer 118, a summation block 122 for forming a composite signal.

Doberstein et al. does not teach a delay circuit in at least a first data path where the first data path is a path from an input symbol stream to the composite data stream. where the delay circuit delays data in the first data path by a fraction of a symbol period relative to data in a second data path as claimed in the application claim.

Okamoto et al. teaches in figure 1 a transmitter including a S/P converter 5, delay elements 27 29 31 33 and combiner 35; see column 11, lines 35-45, multiplexed communication becomes possible while preventing degradation of correlated outputs on the receiving side and avoiding difficulty in demodulation. Since the time difference between the delay times is set to be at least 1 chip, the signal to be demodulated never overlaps the next incoming signal, whereby error rate characteristics can be improved. In other words, signal degradation caused by interference of delayed and multiplexed signals are reduced, whereby error rate characteristics can be improved. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention that Doberstein et al. transmitter in figure 1 can be modified to include delay elements as taught by Okamoto et al.. Motivation is that according to Okamoto et al. teachings, the time difference between the delay times is set to be at least 1 chip, the signal to be demodulated never overlaps the next incoming signal, whereby error rate characteristics can be improved.

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Regarding claim 10, referring back to figure 1 of Okamoto et al., delay elements 27 29 31 33 have delay times is set to be at least 1 chip.

Regarding claim 11, Doberstein et al. transmitter in figure 1 can be modified to include delay elements between input sub streams and pulse shapers. Motivation is delay element does not have any effect on the pulse shapers, therefore, delay elements can be placed before or after pulse shapers.

Regarding claim 26, claim 26 is rejected on the same ground as for claim 9 because of similar scope.

Regarding claim 27, referring back to figure 1 of Okamoto et al., delay elements 27 29 31 33 have delay times is set to be at least 1 chip. The 1-chip delay corresponds to the claimed substantially evenly delay through the symbol period.

Regarding claim 29, claim 29 is rejected on the same ground as for claim 9 because of similar scope. Furthermore, in column 12, lines 35-40, Okamoto et al. further teach the time difference may be an arbitrarily time period.

***Allowable Subject Matter***

5. Claims 1-3 are allowed.

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The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, claim 1 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a predictive weight generator adapted to reduce an amount of waveshaping processing applied to a plurality of input symbol streams by a waveshaping circuit, the predictive weight generator comprises "pulse-shaping filter emulation circuits, mixers, summing, a comparator, and a delay circuit configured as set forth in the application claim".

6. Claims 4-8 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, claim 4 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a post-conditioning circuit that generates a de-cresting pulse that can decrease an amplitude of a signal peak of a composite multicarrier signal in real time, the post-conditioning circuit comprises "elements configured as set forth in the application claim".

7. Claims 12-16 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

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Regarding claim 12, claim 12 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a composite waveform de-cresting circuit that digitally generates at least one de-cresting phase shift in real time that allows a composite multicarrier signal to be generated with a decrease in an amplitude of signal peak, the composite waveform de-cresting circuit comprises "elements configured as set forth in the application claim".

8. Claims 17-21 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 17, claim 17 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of controlling at least a portion of coefficients used in waveform shaping applied to a plurality of baseband signals, the method comprising "the steps performing tasks as set forth in the application claim".

9. Claims 22-25 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 22, claim 22 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of digitally decreasing an amplitude of a selected portion of a composite

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multicarrier signal in real time, the method comprising "the steps performing tasks as set forth in the application claim".

10. Claim 28 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 28, claim 28 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of digitally reducing a probability of an alignment, the method comprising "wherein the plurality of data streams includes "N" data streams, wherein a fraction of the symbol period from a data stream other than the first data stream is delayed relative to the first data stream ....".

11. Claims 30-34 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 30, claim 30 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of digitally decreasing an amplitude of a selected portion of a composite multicarrier signal in real time, the method comprising "the steps performing tasks as set forth in the application claim". It is noted the closest prior art, Thomson (US 6,130,916) teaching method and apparatus for improving a transmission data rate of baseband

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data in a wireless, and Schenk (US 6,529,925 B1) teaching method for reducing the crest factor of a signal, however, fail to anticipate or render the above underlined limitations obvious.

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Khánh Công Trâm

07/22/2005

Examiner KHANH TRAN